XXV. *Some Account of the Lycoperdon solidum of the Flora Virginica, the Lycoperdon cervinum of Walter. By James Macbride, M.D. of South Carolina. Communicated by the President.*

Read June 3, 1817.

This fungus is most frequently dug up in lands which have not been cleared of their original wood more than three or four years, in the preparation for planting. It is found at various depths, from a few inches to two feet, and is sometimes met with partly above ground. I have seen it in every variety of soil, except swampy; but it is found in greatest abundance, and appears to attain to the greatest size, in loose rich lands, the forest-trees of which were different species of oak, *Juglans alba*, Linn., and *Pinus Tæda*. It is very common in the southern states; but is rarely seen further north than Maryland. Its shape is irregular; the largest specimens approach the globular form, or the cylindrical with globular ends. I have seen a specimen which weighed fifteen pounds; and I am credibly informed a single tuber has weighed thirty or forty pounds.

The common opinion entertained of this substance is, that it is the root of the *Erythrina herbacea* or *Convolvulus panduratus*, both of which have large roots, and that of the latter penetrating the earth to a considerable depth. The usual appellation of it is *Indian Potatoe* or Indian Bread. It was used by the Indians as an article of food, as their name for it (*Tuckahoe*) is said to imply.

Fugitive

Fugitive negroes sometimes subsist upon it. Deer, the wood-rat (a *Sorex?*), and probably squirrels, feed upon it when it grows sufficiently near the surface of the earth. From the abundance in which it grows, and its nutritious quality, it must have been to the aborigines a considerable source of subsistence, had they known any method of detecting it. The discovery of it now is always accidental.

This fungus is parasitic at first, growing out of the living roots of various trees. It appears at first, in most instances, between the wood of the root and liber; but in some of the smallest specimens accompanying this paper it can be seen only between the lamellæ of the outer bark. It may, like other fungi, emanate from dead wood, but the smallest specimens which I have seen were attached to living roots. During its growth it detaches the bark from the roots, incorporating it with its coat, surrounds the ligneous portion, and gradually assimilates it with its own peculiar internal substance. If during the expansion of the fungus it comes in contact with the root of another tree, it is also assimilated with it. In large specimens no traces of the bark or wood of the original root are discernible. Nothing is known respecting the progress or duration of the growth of the *Tuckahoe*; it has been dug up in lands cleared of wood more than a century.

The outer coat of this fungus is of a dark-brown colour, and roughened by irregular fissures; the inner, if I may be allowed to make this distinction, is coriaceous, resembling that portion of some of the *Boleti* which is used as touchwood; and when a part of the fungus grows exposed, the inner coat of that portion is thickened, and when properly dried is very combustible. The internal substance is insipid, inodorous, of an uniform white, compact, and not disposed in any regular manner; but in fresh specimens,

specimens, divided transversely, it uniformly cracks in lines perpendicular to the surface. In a solitary specimen, which was very large, I observed something like a disposition of the internal substance in concentric laminæ; but I have macerated many specimens in water, and corroded them by acids, without discovering that such a structure really obtains.

The *Tuckahoe* newly dug up contains little moisture, and soon becomes very hard if kept in a dry place; but in a situation unfavourable to evaporation, a fine white byssus issues from it and envelops it. I have seldom, if ever, seen it undergo any change resembling putrefaction. When exposed a long time to the weather, it crumbles, assumes a ferruginous colour, and becomes acidulous to the taste. The internal substance moistened with water feels slippery. When dried particles of it are pressed between the teeth, they have a cohesive effect; when moistened with water and spread over a hot surface, they form a tough elastic pellicle, which, if exposed to a greater degree of heat, blackens, froths, and emits a smell resembling that of burning bread. When an infusion of galls is added to water in which the tuber has been macerated, a copious white precipitate is thrown down. Sulphuric acid dissolves it, and acquires a purple colour, which in a few days deepens into a black. Water added to this solution causes a dark, flaky precipitate.

From such experiments as I have made with this fungus, I am led to believe its internal part is chiefly composed of gluten, but differently modified from that which we obtain from the *Cerealia*. I have not succeeded in procuring from it any starch or fibrous matter.

In some specimens I have observed portions of the internal substance loose and friable. These were always saccharine and acidulous to the taste.

I am

I am sorry that I am unable to give any information as to the following particulars:

1. How long the fungus continues to derive support from the juices of the roots out of which it grows, and whether it causes the death of the inferior portion of the root.

2. Whether the Indians knew any method of finding it similar to what is practised by the truffle-hunters in Europe. Tradition says they did.

3. The probable quantity of the fungus produced by a given portion of ground.

Charleston, March 28, 1817.